

IN THE CLAIMS

Claims 1,3,11, and 12 have been rejected. Claims 2, and 4-10 have been objected to.

Please amend the claims to more clearly define the patentable subject matter as noted below:

1. (Currently Amended) A vacuum shutdown apparatus for cessation of fuel and air mixture in a carburetor being supplied with fuel from a reservoir thereby shutting down an engine fueled by said carburetor, comprising:

a conduit having a first end and a second end;

means for sealed communication of said first end with the fuel storage bowl providing fuel to an air and fuel mixing chamber in at least one carburetor;

a vacuum source;

an atmosphere inlet; and

means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source, whereby fuel flow in said carburetor to said air and fuel mixing chamber substantially ceases when said means for switching communication is in said second communication thereby creating negative air pressure in said fuel storage bowl relative to said air and fuel mixing chamber.

2. (Original) The vacuum shutdown apparatus of claim 1 additionally comprising:

said conduit having low point between said first end and said second end; and

means to communicate liquid trapped in said conduit to the atmosphere when said means for switching communication of said second end of said conduit is in said first communication with said atmosphere.

3. (Original) The vacuum shutdown apparatus of claim 1 wherein said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source comprises:

a valve;

said valve communicating in a first sealed engagement with said second end of said conduit;

said valve communicating in a second sealed engagement with said vacuum source;

said valve communicating in a third engagement with the atmosphere;

said valve having a default position communicating said second end of said conduit with said atmosphere; and

said valve switchable to a second position providing a substantially sealed communication between said second end of said conduit and said vacuum source.

4.(Original) The vacuum shutdown apparatus of claim 2 wherein said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source comprises:

a valve;

said valve communicating in a first sealed engagement with said second end of said conduit;

said valve communicating in a second sealed engagement with said vacuum source;

said valve communicating in a third engagement with the atmosphere;

said valve having a default position communicating said second end of said conduit with said atmosphere; and

said valve switchable to a second position providing a substantially sealed communication between said second end of said conduit and said vacuum source.

5.(Original) The vacuum shutdown apparatus of claim 1 wherein said vacuum source comprises:

a tank having a negative air pressure formed therein; and

a tube communicating between said tank and said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source.

6.(Original) The vacuum shutdown apparatus of claim 2 wherein said vacuum source comprises:

- a tank having negative air pressure formed therein; and
- a tube communicating between said tank and said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source.

7.(Original) The vacuum shutdown apparatus of claim 3 wherein said vacuum source comprises:

- a tank having negative air pressure formed therein; and
- a tube communicating between said tank and said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source.

8. (Original) The vacuum shutdown apparatus of claim 5 additionally comprising:

- a vacuum tube;
- a one way valve;
- said vacuum tube communicating through said one way valve between said tank and an intake manifold of an engine, said intake manifold having a suction when said engine is operating;
- said negative air pressure being formed in said tank by said suction; and

said one way valve preventing gas from entering said tank through said vacuum tube when said suction from said intake manifold ceases thereby maintaining said negative air pressure in said tank when said engine ceases operation.

9. (Original) The vacuum shutdown apparatus of claim 6 additionally comprising:

a vacuum tube;

a one way valve;

said vacuum tube communicating through said one way valve between said tank and an intake manifold of an engine, said intake manifold having a suction when said engine is operating;

said negative air pressure being formed in said tank by said suction; and

said one way valve preventing gas from entering said tank through said vacuum tube when said suction from said intake manifold ceases thereby maintaining said negative air pressure in said tank when said engine ceases operation.

10. (Original) The vacuum shutdown apparatus of claim 7 additionally comprising:

a vacuum tube;

a one way valve;

said vacuum tube communicating through said one way valve between said tank and an intake manifold of an engine, said

intake manifold having a suction when said engine is operating;

said negative air pressure being formed in said tank by said suction; and

said one way valve preventing gas from entering said tank through said vacuum tube when said suction from said intake manifold ceases thereby maintaining said negative air pressure in said tank when said engine ceases operation.

11.(Original) A method of shutting down operation of an internal combustion engine being fueled by a carburetor creating an air and fuel mixture and communicating that air fuel mixture to at least one engine cylinder for ignition, comprising:

engaging a first end of tube in a sealed communication with the fuel storage bowl of said carburetor; and

engaging a second end of said tube with a source of negative air pressure to create negative air pressure in said fuel storage bowl to thereby cease fuel flow in said carburetor and shut down said engine.

12.(Original) A method of shutting down operation of an internal combustion engine being fueled by a carburetor creating an air and fuel mixture and communicating that air fuel mixture to at least one engine cylinder for ignition, comprising:

engaging a first end of tube in a sealed communication with the fuel storage bowl of said carburetor;

engaging said second end of said tube with a valve switch which communicates said second end of said tube with one of said atmosphere or a source of negative air pressure;

moving said valve switch from a first position wherein said second end of said tube communicates with said atmosphere, to a second position wherein said second end of said tube communicates with said source of negative air pressure to thereby cease fuel flow in said carburetor and shut down said engine.

13. (New) A vacuum shutdown apparatus for cessation of fuel and air mixture in a carburetor being supplied with fuel from a reservoir, comprising:

a conduit having a first end and a second end;

said first end of said conduit adapted for sealed engagement with the distal end of a bowl vent tube extending from the exterior of a body forming a carburetor and in sealed communication with an internal fuel storage bowl providing fuel to an air and fuel mixing chamber in said carburetor;

a vacuum source;

an atmosphere inlet; and

means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source, whereby fuel flow in said carburetor to said air and fuel mixing chamber substantially ceases when said means for switching communication is in said second communication.

14. (New) The vacuum shutdown apparatus of claim 13 additionally comprising:

said conduit having low point between said first end and said second end; and

means to communicate liquid trapped in said conduit to the atmosphere when said means for switching communication of said second end of said conduit is in said first communication with said atmosphere.

15. (New) The vacuum shutdown apparatus of claim 13 wherein said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source comprises:

a valve;

said valve communicating in a first sealed engagement with said second end of said conduit;

said valve communicating in a second sealed engagement with said vacuum source;

said valve communicating in a third engagement with the atmosphere;

said valve having a default position communicating said second end of said conduit with said atmosphere; and

said valve switchable to a second position providing a substantially sealed communication between said second end of said conduit and said vacuum source.

16. (New) The vacuum shutdown apparatus of claim 14 wherein said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source comprises:

a valve;

said valve communicating in a first sealed engagement with said second end of said conduit;

said valve communicating in a second sealed engagement with said vacuum source;

said valve communicating in a third engagement with the atmosphere;

said valve having a default position communicating said second end of said conduit with said atmosphere; and

said valve switchable to a second position providing a substantially sealed communication between said second end of said conduit and said vacuum source.

17. (New) The vacuum shutdown apparatus of claim 13 wherein said vacuum source comprises:

a tank having a negative air pressure formed therein; and

a tube communicating between said tank and said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source.

18. (New) The vacuum shutdown apparatus of claim 14 wherein said vacuum source comprises:

- a tank having negative air pressure formed therein; and
- a tube communicating between said tank and said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source.

19. (New) The vacuum shutdown apparatus of claim 15 wherein said vacuum source comprises:

- a tank having negative air pressure formed therein; and
- a tube communicating between said tank and said means for switching communication of said second end of said conduit between a first communication with said atmosphere inlet and a second communication with said vacuum source.

20. (New) The vacuum shutdown apparatus of claim 17 additionally comprising:

- a vacuum tube;
- a one way valve;
- said vacuum tube communicating through said one way valve between said tank and an intake manifold of an engine, said intake manifold having a suction when said engine is operating;
- said negative air pressure being formed in said tank by said suction; and

said one way valve preventing gas from entering said tank through said vacuum tube when said suction from said intake manifold ceases thereby maintaining said negative air pressure in said tank when said engine ceases operation.

Claim Rejections per Grifka under 35 USC §102

The examiner has rejected claims 1,3,11 and 12, per Grifka per 35 USC §102. Applicant has amended claim 1 to more clearly define the patentable subject matter. Applicant has also added new claims 13-20 which read on claim 1-6 and more specifically define the structure of claim 1.

The cited reference of Grifka, while similiar in nature to Applicant's device, is completely differnt in structure, mechanical operation, and claimed function.

Grifka is a fuel shut-off system to prevent run-on *when the engine is turned off*. Grifka is not a Vacuum shutdown system that will actually turn off the engine, irrespective of the ignition, as is Applicant's device. The structure, and resulting function of Grifka, is much different than the device claimed and taught by Applicant.

Grifka teaches an actual caburator rather than a shut down system that is attachable to one or more carburators such as Applicant's device. Grifka requires that the vacuum bypass passage is *carried* by the carburator body and the fuel chamber passage must be *carried* by the carburator body. Both the vacuum bypass passage and fuel chamber passage communicate with a common chamber, also formed in the carburator body. The common chamber provides a mount for the valve through the body wall of the carburator. (Claim 1, Figure 5, column 3, lines 1-40)

Still further, Grifka cannot be used to shut down the engine, that must be done first by turning off the ignition wherein the Grifka device will help prevent non-ignition created run-on. (Column 1 lines 50-53, Column 3, lines 40-56). Rather than operating as a shut-down, independent of the ignition, as Applicant's device, Grifka requires the engine ignition to be turned off. This is because Grifka simply attempts to equalize the pressure in the fuel bowl with that of the venturi section of the carburetor by connecting the internal bowl vent passage formed in the carburetor body, with an internally formed vacuum bypass which communicates with the carburetor throat adjacent to the venturi. Equalizing the pressure will not actually stop the engine in most cases, especially if the throttle is wide open and the vacuum is pulsing between very high and low pressures caused by the pistons revolving and the changing vacuum inside the manifold downstream. Any vacuum communicated through the elongated vacuum bypass tube formed in Grifka would be delayed by the distance of the tube, and, would suffer from losses of vacuum during pulses in the vacuum caused by the throttle plate opening and closing the pistons generating it. Consequently, the vacuum supplied by the internal passages of Grifka would not cause negative air pressure in the fuel bowl sufficient to stop the flow and stop the engine as applicant's device does by employing a reservoir or pump. That is why Grifka instructs that the

engine must be turned off for the device to then only stop run-on from non ignited sources.

Applicant on the other had, teaches and claims a shutdown apparatus that creates a negative air pressure in the fuel storage bowl relative to the venturi causing the total cessation of fuel flow thereby stopping the engine. (Page 9, lines 6-20). No ignition turn-off is required due to the way applicant's device is structured and operates.

Still further, Grifka claims and requires structures to be *formed inside the carburetor body*. The vacuum bypass passage, the fuel chamber passage, of claim 1 of Grifka are connected to the valve at the common chamber (46) of figure 5.

Applicant's claimed device on the other hand, in claim 1 and subordinate claims, and in new claim 13 and subordinate claims to both, exists exterior to the carburetor and simply engages with any carburetor vent tube, of one or more of any existing carburetors and works with various available sources of vacuum to create negative air pressure in the fuel bowl.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann*

Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984).

The cited reference thus and lacks elements of the ability to attachment to any one or plurality of carburetors exterior to them. It

also lacks the ability to shut down an engine and actually teaches against such a use most probably because the internal passages providing the vacuum will not generate sufficient negative pressure to stop the engine when it is running, but only when it is turned off. As to claim 13 and subordinate claims thereto, the cited reference lacks the external positioning of the distal end of the tube communicating with the external vacuum source.

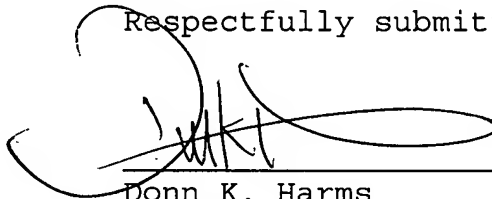
Consequently, the objection under Section 102 is respectfully traversed.

Final Remarks

The claims have been amended to more clearly define the original elements of the application as to patentable subject matter. The amended claims have been shown to contain elements providing function lacking in the cited art, and the cited art teaches away from the structure and function provided by applicant's claimed device. As such all claims should now be allowable.

Should the Examiner have any further questions or concerns the Examiner wishes to address by Examiner's amendment by telephone or otherwise, or should the Examiner have suggestions to more clearly define the subject matter of the claims to more clearly define the patentable subject matter, the Applicant's attorney would be most receptive to such.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Donn K. Harms', is written over a horizontal line.

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engine must be turned off for the device to then only stop run-on from non ignited sources.

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Consequently, the objection under Section 102 is respectfully traversed.